EGG RETREAT OF *METAPHIDIPPUS ARIZONENSIS* (PECKHAM) (ARANEAE:SALTICIDAE) IN A HOLLOW STEM[1]

Daniel T. Jennings[2]

Jumping spiders of the family Salticidae deposit their eggs in silken sacs. The egg sacs are usually lens-shaped and are found within larger nests or egg retreats constructed of slightly viscid silk. Unlike many spiders which leave their egg sacs unguarded after oviposition, the female jumping spider remains with the retreat after egg-laying and guards the developing offspring (Gertsch, 1949). The retreats are spun in protected locations such as in crevices, under stones, in foliage, and beneath starting bark of standing and felled trees. This paper describes the collection of a jumping spider egg retreat spun within the confines of a dry, hollow composite stem.

On 24 July 1970, while examining a ponderosa pine seedling *(Pinus ponderosa* Laws.) for damage caused by the southwestern pine tip moth, *Rhyacionia neomexicana* (Dyar), a nearby standing dead stem of the composite *Tragopogon pratensis* L. was noted to have webbing near the level of the old flower head (Fig. 1a). Closer inspection revealed that the stem was occupied by a female *Metaphidippus arizonensis* (Peckham) jumping spider. The composite head, measuring 9 mm across, had dried and the center

[1] Accepted for publication: February 28, 1973

[2] Entomologist. Rocky Mountain Forest and Range Experiment Station, 5423 Federal Building, 517 Gold Avenue, SW, Albuquerque, New Mexico 87101. U.S. Department of Agriculture, Forest Service, with central headquarters maintained at Fort Collins in cooperation with Colorado State University; author is located at Albuquerque in cooperation with the University of New Mexico.

split, thus providing an opening (3 x 4 mm) into the hollow stem (Fig. 1b). The opening into the stem was lined with silk, and surrounding grass stalks were tied to the old flower head, perhaps in an effort to conceal the opening. These grass stalks were bent away in the photo (Fig. 1c) to better show the opening into the stem. An egg retreat, 26 mm long, was constructed inside the stem (Fig. 1d). The collecting locality is in a ponderosa pine plantation (sec. 20, T13N, R14E) planted in 1965, on the Dudley Burn, Chevelon Ranger District, Sitgreaves National Forest, Coconino County, Arizona. Elevation at this locality is ca. 7,100 feet above sea level (Woods Canyon Quadrangle, U.S. Geological Survey Topographic Map, 1961).

The adult spider was removed from the retreat and readily fed on late-instar larvae of the tip moth in the laboratory.

Dissection of the egg retreat showed that it consisted of a flimsily spun chamber for the adult female spider and a densely woven brood chamber. The brood chamber contained 4 nonviable eggs and 22 developing 2nd-instar spiderlings. Cast exuviae within the brood chamber indicated that the spiderlings had undergone one complete molt after emerging from the eggs.

The dry, hollow stems of *T. pratensis* provide a suitable protected habitat for construction of egg retreats. Several stems of this composite were subsequently examined on the Dudley Burn but no additional retreats were found. Egg retreats of *M. arizonensis* were found in less protected situations on the undersides of plantation ponderosa pine branches and on the forb *Eriogonum alatum* Torr. None were seen on grasses and shrubs.

The utilization of a hollow plant stem by *M. arizonensis* as an egg retreat site is similar to collections of jumping spiders with eggs from old insect galls. Miller (1966) found on two separate occasions females of *Salticus scenicus* (L.) accompanied by hatching eggs in galls on stems of goldenrod (*Solidago* spp.) in Ohio. Judd (1967) concluded that *S. scenicus* and two other species of salticids, *Gertschia noxiosa* (Hentz) and *Icius* sp., were using old galls on *Solidago canadensis* L. as egg-laying sites in Ontario. Cavities constructed by gall-making insects, and their parasites and predators, provide protected habitats for egg retreats similar to habitats provided by hollow stems.

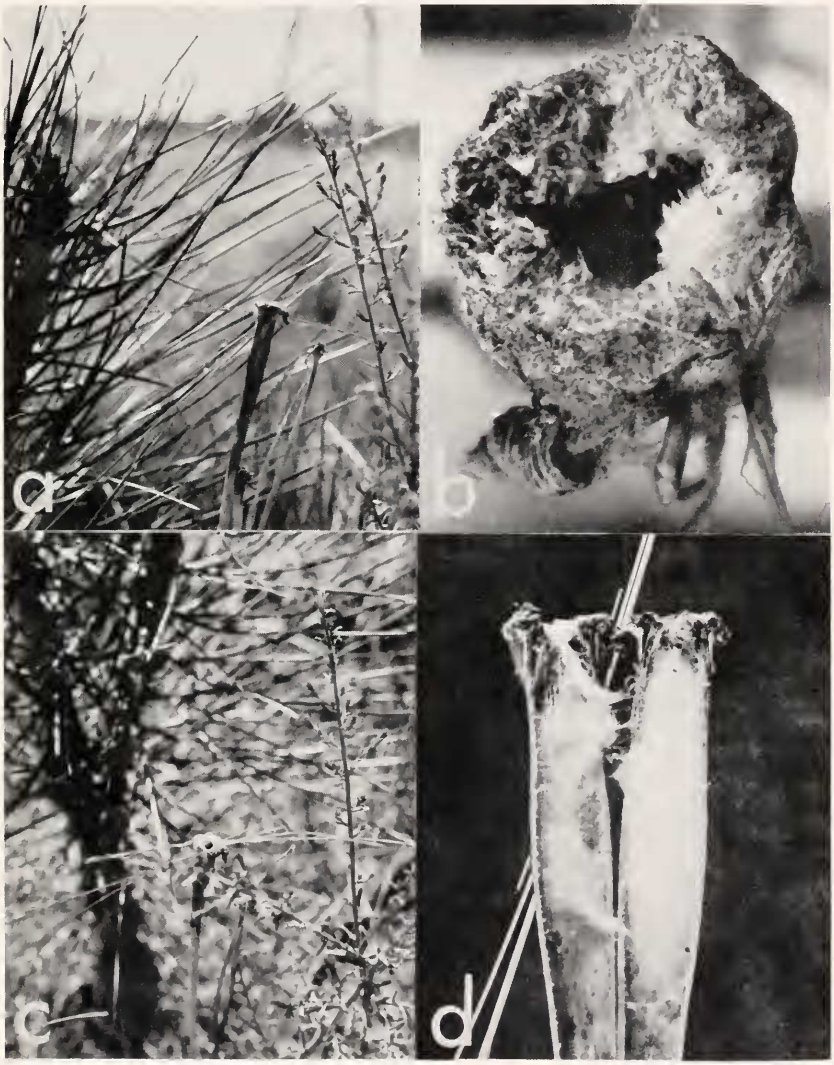

Fig. 1. Dried stem of *Tragopogon pratensis* L. with egg retreat of salticid spider, *Metaphidippus arizonensis* (Peckham). Side view (Fig. 1a) of stem near plantation ponderosa pine seedling. Flower head has split (Fig. 1b) providing opening into hollow stem. Nearby grass stalks were tied to the stem (Fig. 1c) containing the egg retreat (Fig. 1d).

The close proximity of egg retreats of *M. arizonensis* on plantation pines and on associated forbs to shoots infested with *R. neomexicana* larvae, and the general predatory activities of this spider, indicate it is at least a potential predator of the southwestern pine tip moth. Although none were observed feeding on larvae of the tip moth in the field, females have been observed actively searching pine foliage for prey. Related species of *Metaphidippus* have been observed feeding on other species of shoot and tip moths (Eikenbary and Fox, 1968; Juillet, 1961).

Little is known about the geographical distribution of *M. arizonensis.* This species was described from a single male collected in Arizona. No other locality data are given with the description of the holotype. The collection of this species from Coconino County may represent a new county record.

The female and juvenile spiders are deposited in the American Museum of Natural History, New York.

LITERATURE CITED

Eikenbary, R. D and **Richard C. Fox.** 1968. Arthropod predators of the Nantucket pine tip moth, *Rhyacionia frustrana.* Ann. Ent. Soc. America 61:1218-1221.

Gertsch, Willis J. 1949. American spiders. D. Van Nostrand Co., Inc., New York. xiv + 285 p.

Judd, William W. 1967. Insects and other arthropods from year-old galls caused by *Gnorimoschema gallaesolidaginis* Riley (Lepidoptera: Gelechiidae) on goldenrod. Canadian J. Zool. 45:49-56.

Juillet, J. A. 1961. Observations on arthropod predators of the European pine shoot moth, *Rhyacionia buoliana* (Schiff.) (Lepidoptera: Olethreutidae), in Ontario, Canadian Ent. 93:195-198.

Miller, William E. 1966. Spiders in old insect galls on goldenrod. Ohio J. Sci. 66:618-619.

ABSTRACT:—An egg retreat of *Metaphidippus arizonensis* (Peckham) was found in a dry, hollow stem of the composite *Tragopogon pratensis* L. in Coconino County, Arizona. Egg retreats of this spider also occur on *Pinus ponderosa* Laws, seedlings in association with the southwestern pine tip moth, *Rhyacionia neomexicana* (Dyar), and on the forb *Eriogonum alatum* Torr. The adult spider readily accepts late-instar tip moth larvae as prey in the laboratory.— DANIEL T, JENNINGS, Rocky Mountain Forest and Range Experiment Station, 5423 Federal Building, 517 Gold Avenue, SW, Albuquerque, New Mexico 87101.

Descriptors: Egg retreat; Araneae; Salticidae; *Metaphidippus;* Arizona; Predation; *Rhyacionia neomexicana* as potential prey; Lepidoptera; *Tragopogon; Eriogonum; Pinus.*